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The Early Training Project attempted to improve the intellectual functioning and personal adjustment of culturally disadvantaged children through special experiences in the fifteen or twenty-four months preceding first grade and in the first year of school.

The procedures of the project consisted of two training sequences. The first sequence involved two special summer school experiences of ten weeks each; including contracts through the winter with a specially trained home visitor. Similarly the second sequence began a year earlier and involved three summer school experiences; it also provided an additional year of home visitor contacts. The two training patterns were used in an attempt to compare the shortest experience that the investigators felt would have a lasting effect with a longer period which had more probability of success and was more expensive to operate. Two control groups were involved each in a community where school and other influences would tend to be the same. The second control group was used to examine the diffusion effects of contact with the experimental subjects.

Results proved that the two experimental groups showed superiority to the control group on the Stanford Binet Intelligence Test and the Peabody Picture Vocabulary Test. The group involved in the shorter period of training was the better of the two experimental groups.

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Early Training Project

INTERIM REPORT

NOVEMBER, 1963

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MURFREESBORO, TENNESSEE, CITY SCHOOLS

AND

GEORGE PEABODY COLLEGE FOR TEACHERS

RUPERT A. KLAUS, DIRECTOR SUSAN W. GRAY, CO-DIRECTOR

BAXTER HOBGOOD, SUPERINTENDENT

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But finally and most of all, we owe our major debt of gratitude of the children in the project and their parents. The cooperation of the parents has been the essential element in our ability to conduct the study; the responsiveness of the children has been a continuing source of delight to us as we have worked with them over a period of two years.

EARLY TRAINING PROJECT: INTERIM REPORT, NOVEMBER, 1963*

Susan W. Gray and Rupert A. Klaus
George Peabody College and Murfreesboro City Schools

This paper describes the activities and findings of the Early Training Project during its first 26 months of operation.

The General Plan of the Study

First, for a brief summary of the purposes and the general design of the Early Training Project itself.

The Early Training Project attempts to improve the intellectual functioning and the personal adjustment of culturally deprived children through special experiences provided for them in the 15 or 24 months preceding entrance into the first grade and during the first year in school. The experimenters hope to demonstrate the feasibility of such an approach and to develop materials and patterns of procedure that could be used by others.

Two training sequences are being followed. One consists of two special summer school experiences of ten weeks each, plus contacts over the winter with a specially trained home visitor in the year between the summer sessions and during the first grade. The other training sequence is similar except that it begins a year earlier, consists of three summer school experiences, and provides an additional year of home visitor contacts. The two training patterns represent an attempt to compare the shortest experience that the investigators, on the basis of previous work, judge might have lasting effect, and a longer period with more probability of success, but more expensive to operate. Two control groups are involved, one in the community, where school and other influences will tend to be similar, the other in a different but comparable community. The second control group will allow us to examine possible diffusion effects of such training upon children in contact with the experimental subjects. Each of the three groups in the community consists of from 20 to 22 children. The second control group in the different community consists of 27 children. Table I is a layout of the general experimental design.

The ten-week summer schools center around two main classes of variables:

A. Attitudes toward achievement. This includes achievement motivation, persistence, ability to delay gratification, interest in school-type activities, identification with achieving role models, and the parent's attitude toward the child's achievement.

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Table I

Layout of General Research Design

Treatments	T_1 Three Summer Schools	T_2 Two Summer Schools	T_3 Murfrees. controls	T_4 Out-of-town controls
First Winter	(Criterion development, curriculum planning, general tooling up)			
First Summer 1962	Pre-test Summer School Post-test	Pre-test Post-test	Pre-test Post-test	Pre-test Post-test
Second Winter 1962-63	Home Visitor Contacts			
Second Summer 1963	Pre-test Summer School Post-test	Pre-test Summer School Post-test	Pre-test Post-test	Pre-test Post-test
Third Winter 1963-64	Home Visitor Contacts	Home Visitor Contacts		
Third Summer 1964	Pre-test Summer School Post-test	Pre-test Summer School Post-test	Pre-test Post-test	Pre-test Post-test
Fourth Winter 1964-65	Home Visitor Contacts Follow-up Tests	Home Visitor Contacts Follow-up Tests	Follow-up Tests	Follow-up Tests
Fifth Winter	Follow-up Tests	Follow-up Tests	Follow-up Tests	Follow-up Tests

B. Aptitude for achievement. This includes perceptual development, concept formation, and language development.

In addition, general attention is directed toward the children's personal and social development, particularly as it may relate to school performance, and to the children's general physical condition.

The home visitor contacts focus on providing a continuity through the year, both by the provision of materials and by reinforcement and support for child and parent in terms of the experimental variables. A limited amount of psychiatric consultation is being used to enable the teachers and home visitors better to provide experiences conducive to the emotional growth of the youngsters, and also to check on the possible ill effects of the planned intervention involved in a study such as this.

It is hoped that this study, if successful, will yield useful information and possible patterns of procedure for schools faced with the inmigration of culturally deprived groups and with the desegregation of schools.

The Experimental Subjects

A census was first made of all Negro children in Murfreesboro, Tennessee, born in 1958. It might be mentioned parenthetically that Negro children were chosen for two reasons: (1) the schools of Murfreesboro are at present segregated; it seems inadvisable at this point to inaugurate an integrated project that will be seen by the townspeople as emanating from the schools, although it is actually not part of the school's instructional program; and (2) in the Negro group in Murfreesboro a more massive deprivation exists in the Negro group than among the white children. In addition there is at present limited opportunity for upward mobility in the Negro population in Murfreesboro. This means that the culturally deprived Negro group probably contains many more individuals of higher potential ability than would a culturally deprived white group where more opportunity for upward mobility is already present.

On the basis of the census of children born in 1958 a group was selected for our study according to the following criteria:

Housing. Points considered were: whether house owned or rented, its general exterior and interior condition, the amount of crowding, and the cultural materials present in the home such as books, magazines, musical instruments, radio, and television.

Education of the parents.

Occupation of the parents.

By use of these criteria approximately 60 children were selected from the Negro children born in Murfreesboro in 1958. In a town of similar size and industrial development, Columbia, Tennessee, a group of the same age was surveyed and selected to serve as an additional control group.

From the children selected as culturally deprived in Murfreesboro three groups were formed by random selection: (1) an experimental group (T_1) to receive three summers of special experiences, plus three winters

of contacts with the home visitor; (2) a group (T_2) to receive two summers of special experiences plus two years of home visitor contacts, and (3) a control group (T_3).

All children selected as culturally deprived in Murfreesboro and the group in Columbia were given a series of pre-tests. These consisted of (1) the Revised Stanford Binet; (2) the Peabody Picture Vocabulary Test (Form A), and (3) a locally developed test of concepts which included color recognition and naming, number, and recognition of embedded figures. Table II shows the scores of the four groups upon the first two pre-tests.

Table II

Means of Groups on Pre-test Data

Group	CA (months)	Binet MA (months)	Binet IQ	PPVT MA (months)
First Experimental Group (T_1)*	45.2	39.3	85.7	29.8
Second Experimental Group (T_2)	45.7	42.0	88.2	29.5
Controls-Murf. (T_3)	46.7	40.1	88.2	28.3
Controls-Col. (T_4)	45.9	40.3	88.0	32.0

*First Experimental Group (T_1) is the group with which we began work in the summer of 1962; Second Experimental Group (T_2) is the one with whom work began in June, 1963.

The Summer School in 1962

For the ten weeks from June 11 to August 17, 1962 the first experimental group (T_1) met for five days a week from 9:00 to 1:00. This group consisted of 22 children.

For our experimental space we used the Negro elementary school in Murfreesboro. Bradley School is a modern well-equipped building erected in 1955. Since no one else is using the building during the summers, this has made it possible for us to use as many of the classrooms as we wish for small groups, to use the cafeteria for the children's meals, and any other space or equipment that we desired.

Our staff for the first summer consisted of the following people: a co-ordinating teacher who is regularly employed as a first grade teacher in the Nashville Schools, five students in the doctoral training program

in school psychology at Peabody College (three of these worked during the first five weeks of the study and two during the last five weeks of the study), and two undergraduate college students who were employed for the full ten weeks. This meant that, with the coordinating teacher and four to five assistants, there was at least one full-time teacher for every four to five children. In addition, the project director was present for most of the time, and the co-director for nearly half the time. The research associate on the project also worked full-time during the summer. While most of his work was with overall concerns, he also spent a limited amount of time with individual children, as did the director and co-director; this again increased the number of adults with whom the children were encouraged to relate. Each of the persons working with the children had gone through a considerable period of becoming acquainted with the nature of the project, with the general area of cultural deprivation and its probable origins, and to some extent with methods and procedure for working with children of this age.

The Daily Schedule

A skeleton outline of the daily schedule during the first summer follows:

9:00 - Arrive

9:10 - Work in small groups with teaching assistants. This was in one of several settings: (1) the main group room, where children chiefly worked with perceptual materials and materials to develop concepts, and with books and story-type materials; (2) a music room where children sang and played with rhythm instruments; (3) an art room where children painted, cut and pasted, did finger painting, and the like; (4) a room set up for the use of wheel toys; and (5) a room set up for play with large blocks.

10:00 - Morning juice and crackers. Wash up.

10:30 - A group activity. This was generally singing, story dramatization, filmstrips, films, simple games and the like.

11:00 - Small group activities once more.

12:00 - Lunch

12:30 - Work in small groups.

12:50 - Getting ready to go home.

1:00 - Departure on the bus.

A casual visitor to our summer school, or a person looking at the many photographs which were taken of the activities, might think that the things we were doing were not unlike what goes on in the usual pre-school. It is true that many of the materials, such as wheel toys, easel paints, blocks, and rhythm instruments are typical ones for children of this age. We, however, see several differences between what we did and what might be done in the usual pre-school. First of all, the significance of what we were attempting to do lay not so much in the materials as in the particular uses to which we put these materials. Later on, we shall describe in some detail how we used various materials to manipulate the experimental variables. Secondly, the high ratio of adults to children in the project and the orientation of the adults towards the variables with which we were concerned is relevant. With one adult for every four or five children it was possible to provide a great deal more individual planning and more immediate and frequent reinforcement than would be true in the typical school setting. Finally, there were differences in the relative weighting of time devoted to the several kinds of material. For example, our children spent a great deal of time with one-inch colored blocks. These were used for any number of counting activities, the development of color concepts, and the development of concepts of size, direction, and the like. Although we had wheel toys and a jungle gym, the length of time spent with these pieces of equipment was probably much less than one would find in the usual pre-school.

One important element of our program was the effort to arrange experiences for individual children and groups of children in line with their particular needs and level of development. We began our work with small groups of children by allocating them roughly according to mental age. In terms of MA's our children ranged from 2-3 to 5-0 at the beginning of the study. The IQ range was 65 to 115. Rearrangements of the sub-groups continued to be made throughout the first part of the summer on the basis of the social maturity of the youngsters, the kinds of interactions that occurred among the children, and the competencies of the teaching assistants in working with children with varying patterns of behavior. For example, there was a pair of identical twins in our first experimental group. After a two week session with these youngsters we decided their development would be best served by separating them. Within each small group, emphasis was placed on trying as much as possible to adjust the demands to the level of competency of each child in that group.

The teaching staff assembled each morning approximately an hour before the children came. This time was used for general planning for the overall group, planning for the small groups, and for discussion of general problems or problems with specific children. In addition, the teaching assistants each day developed lesson plans for their small groups, and also wrote notes each day on their individual children to describe their accomplishments, or lack of them, in relation to the experimental variables. The directors of the study feel that one of the weaknesses of our first summer program was the somewhat sketchy attention sometimes given to these lesson plans and to such recording of the children's responses.

Attitudes Toward Achievement

Our work on attitudes centered around trying to increase the child's achievement motivation, his persistence toward a goal, his ability to delay gratification, and trying to arouse interest in school type activities, such as listening to stories and looking at books. In addition, we tried to provide opportunity for identifying with achieving role models.

1. In terms of achievement motivation, we found that the most effective areas with which to start were those involving motor skills. Our children were much more adept at climbing the jungle gym or operating the wheel toys than they were in more sedentary intellectual pursuits. We capitalized on their interest and skill in motor activities, for example, by making a game of throwing a large ball into the wastebasket. Much adult social approval was given for the child's attempts to throw the ball into the basket and particularly to his successful efforts. Obviously, we set this activity up in such a way that the probability of success was high. We also did such things as throwing a ball a distance and encouraging the children to race toward the ball, again giving noisy acclaim to the child who succeeded in reaching the ball first. Whenever the child produced something--such as an easel painting--again he was given considerable social reward by the adults or sometimes concrete reward in the form of M & Ms. We posted a large number of the children's paintings. In general, our efforts centered around attempts to get the child to try harder to compete, to improve his performance, and to make efforts to do something new and challenging. For instance, among the wheel toys, we found the Irish mail to be particularly useful. It was a wheel toy unfamiliar to the children, and one which takes more skill to operate than the tricycles or wagons with which they were familiar.

2. Persistence and the ability to delay gratification we handled in a somewhat similar manner, by encouraging the child to try longer and harder to accomplish something. On a few occasions we attempted to present the child with a situation to test delay of gratification in terms of a little of some desired object--such as candy--now, or more later. We believe, however, that we were not very successful in getting this concept across to such young children during the first summer.

3. Our attempts to provide some identification with achieving role models centered around two general procedures: (a) calling the attention of the children to the accomplishments of youngsters in their own group, and (b) the pattern set by the teaching assistants and the coordinating teacher themselves. It might be mentioned that our teachers, teaching assistants, and other staff personnel were divided about equally with respect to sex, with slightly more men than women. This was not entirely happenstance, as we felt it important, particularly for the boys, to provide father figures. One of the problems that may be inherent in the achievement pattern of the youngsters in our study is that for many of them there is no father present in the home, or the father, as is typical in the lower-lower class group, has largely abdicated his parental role. Some of our workers were white and some were Negro. We felt it desirable for the children to have contact with adults of both races,

but of similar attitudes, in working with the children.

4. Interest in school-type activities was developed chiefly through providing concrete, immediate reinforcement for certain performance related to schooling. For example, with our more advanced children, we began fairly early in the summer to ask the children to identify their names printed on slips of paper. If a child was able to select his own name from between two names, if he were just beginning with this activity--or from among four or five names as he progressed--he was immediately given M & Ms, or some kind of social reinforcement. Books and pictures we attempted to make more interesting to the children by choosing books as closely in line as possible with their concerns and background, by reading to them for as long as they would tolerate such an activity without boredom, and by dramatizing simple stories. For example, first we read the story of Little Red Riding Hood, then there was a puppet show, and subsequently some dramatizing by the more advanced children themselves. We also made some effort to provide story type material closely in line with their backgrounds. We did this by going around the community and taking pictures that were developed into color slides. Later these were projected on a small screen and used for discussion with the children and for the development of simple stories. As everyone knows who has worked with culturally deprived children--and particularly Negro children--stories and reading materials specifically appropriate to the child's background and interest are almost nonexistent.

Aptitudes for Achievement

In terms of the broad area of aptitudes for achievement, our work was directed toward developing the more simple and basic concepts needed in school work, toward increasing the perceptual discrimination of the youngsters, and in language development.

1. In concept formation we worked chiefly in the following areas: number concepts, color concepts, and concepts concerning the more familiar classes of objects in the world in which they live, such as animals, trees, vehicles, food, vegetables, fruits, etc. In addition we stressed position words (such as: up and down, front and back, above and below) and action categories (such as: walk, run, jump and hop).

2. In perceptual development we were particularly interested in increasing the child's ability to recognize forms, shapes, and patterns, to discriminate among sounds, tastes, odors, textures, and the like. For example, we made use of peg boards and small colored pegs which the children used to construct patterns according to models provided for them by the teaching assistants. We had the child identify tape-recorded sounds. They made attempts to identify by touch familiar objects which were hidden in paper bags.

3. In language development, our major efforts were directed first toward encouraging the children to talk, and in placing them in situations where language was necessary for the reinforcement they were seeking.

For example, with wheel toys we set up conditions so that the child could not obtain a wheel toy unless he asked for it by name. He could not get one another child was using until he used some verbal means of persuading the child to let it go, rather than merely tugging at it. Obviously, the adults supervised this. When a child got to the point where he could say "May I have a turn on the tricycle, please?" the adult made sure that the turn was immediately forthcoming. Luncheon every day is another illustration. Here the situation, of course, was one of making it necessary for the child who wanted any seconds of food, or sometimes even firsts, to ask for them. Later on, and particularly with the more advanced children, we encouraged language development a great deal by small group discussions of the activities in which they were engaged, by getting the children to help complete stories with which they were familiar, by some very simple dramatizations of stories such as the Little Red Hen, and by recording their voices and allowing them to listen back to the tapes.

Personal and Social Development

In terms of social and personal development, our efforts were directed chiefly toward helping the children adjust to a group situation and to adults with whom they were unfamiliar. For example, two of the children in our first experimental group came in tears for the whole first week. These were very immature children, who, as well as we could tell, had been treated almost like infants in their homes. One of them had been carried by her grandmother most of the daylight hours since she was a baby. Here our efforts were directed toward setting up a secure situation for the child and, at the same time, ignoring as much as we could the crying behavior. Instead, we tried to reinforce any sort of exploratory behaviors the child exhibited in relation to the materials and people of the pre-school. There were other children who were hyperactive, or fearful. Here, as with the crying children, we tried to set up a situation where the undesirable behavior was either minimized, or ignored where appropriate, and where the children were given security and reinforcement for any movement they made away from the conditions hindering the social and intellectual progress in the pre-school. Our psychiatrist-consultant observed these children, and gave us his judgment upon their general reactions to the summer experience.

General Physical Condition

During the first weeks of the summer school all of our children were examined by the County Health Department and some steps were taken for remediation of gross physical needs, although these actually turned out to be few in number. We had one little girl who had a slight heart murmur, a case or two of ringworm, the sniffles, and the like, but we were surprised that the children generally were in as good a physical condition as they appeared to be. We attempted to provide for each child a nourishing noon-day lunch, in addition to the mid-morning juice and crackers. Our children were weighed and measured three times during the summer. Most of the children showed slight height gains and weight gains.

These, of course, could not be attributed in any large measure to the summer program.

Procedure of Reinforcement

Although much of what we did in the way of utilizing varying patterns of reinforcement has been mentioned in the proceeding paragraphs, it might be well to state briefly the general procedure we used. We began with the assumption that either one or both of two main classes of reinforcement would be effective for any given child. One was concrete reinforcement chiefly M & Ms, and the second was social reinforcement in the form of physical contact with adults--patting, hugging, carrying around. The children in the group varied as to which of these two classes of reinforcement was more potent. To some extent each form worked with every child. We attempted during the study, particularly at the beginning, to make reinforcement as immediate and as consistent as possible. As the summer progressed we tried to move away from any widespread use of concrete reinforcement. We continued to use social reinforcement, but made two changes in its use, or at least tried to do so. One was to use verbal reinforcement in increasing amount as compared to physical contact. Much of this we did by a simple conditioning paradigm through pairing physical contact and verbal reinforcement, or verbal reinforcement and M & Ms. Also, as the summer moved on, we attempted to be more selective in our reinforcement. Things that were reinforced at the beginning of the summer, such as saying "May I have a glass of milk," were no longer reinforced socially, other than by pouring the glass of milk. Instead, social reinforcement was given for a more difficult sort of request, or for using the name of a new and strange food. Again, at the beginning of the summer, a child was reinforced if he could locate his own towel under a little picture by which he was to identify it. As the summer wore on, such reinforcement was related to more difficult recognitions and discriminations.

The Findings at the End of Summer, 1962

Immediately after the ten weeks summer school all of the experimental and control children were tested on the Stanford Binet, the Peabody Picture Vocabulary Test and the local concept formation test. The results of this post-testing may be seen in Table III (p. 16) and in Figure A (p. 18). Results on the concept formation tests are not given since they yielded no significant results except in the area of numbers and color. In these the T_1 children were superior.

Gains on the Stanford Binet and on the PPVT were significant for the first experimental group as compared with the other three groups. These three other groups, at this stage of our project, functioned as control groups, since none of them have had any contact, other than by contagion, with the summer experience. The gain made by the experimental group upon the Stanford Binet of 9.7 months, as compared to a mean gain ranging from 3.4 to 4.2 in the other three groups is striking. This was a gratifying finding to the experimenters. Yet the staff of the project feels that in

terms of the long range aim of the study--the improving of the academic performance of the children during their school years--such findings must be taken cautiously. For example, it seems likely that the marked gain of the experimental children may have been influenced by their having learned, during the course of the summer, to relate to a wide range of adults. The post-testing was done by individuals who were strangers to the children and who did not know to which experimental group the children were assigned. Still, experiences during the summer with eight different adults not members of the home circle probably increased the ease with which these children related to a strange examiner. In addition, our patterns of reinforcement through the summer were such as to increase the task orientation of a child. This again may have contributed to the improved performance on post-testing. One can argue, of course, that the inability to relate to strange adults and a lack of task orientation was the very core of cultural deprivation in the young child. The results are hopeful, but they certainly do not answer the major question we have posed: Is it possible, by the manipulation of the particular experimental variables selected, to enable culturally deprived children to be more successful in school?

From Fall through Spring 1962-1963

During the fall, winter, and spring the children were not in the special school. Activities for the year were carried on chiefly through the home visitor who spends forty-five minutes to an hour each week with each mother and child in the project. In addition, on one Saturday in each month the children met for three hours with the coordinating teacher, the director and co-director of the program, and three other persons who work as teaching assistants. The purpose of the monthly meeting was to attempt to reinstate those patterns developed in the summer.

The home visitor's work, which went on throughout the academic year, was begun during the summer. She attempted to interpret to the mothers in the project what it was we were attempting to do with each child, and to help the mother develop pride and interest in her youngster. For example, each mother came and spent an hour or two observing her child and the other children in the various activities in which they were engaged. During the fall, winter, and spring the home visitor's work with the parents was centered around the following areas: (1) Providing materials for the child in an attempt to provide continuity from last summer's experience and the one to come through helping the child retain what was learned during the past summer. The home visitor brought the children such items as little books, either stories, picture dictionaries, or counting books. She also brought crayons, drawing paper, construction paper, paste, and similar items. (2) The mother was shown how to use these materials with the child, and where desirable--as it frequently was--the home visitor role-played, with the mother enacting the role of the child with whom the mother would subsequently work. (3) Each week an effort was made to suggest certain activities that the parents should attempt to carry on with the child during the week. These were generally simple and concrete and were directed toward the child's particular

needs. For example, one week one parent was asked to emphasize the recognition of a new color for her child. Another week she was asked to help the child in his counting up to some number beyond that to which he was presently able to count. (4) Parents were encouraged to take the child for walks, to discuss the seasonal changes in the vegetation with him, and to see new and familiar places and activities. (5) Efforts were also made to reinforce the parent in her endeavors with the child and to reinforce the child himself for what he had accomplished during the week. (6) We subscribed to Ebony for each parent in T_1. The home visitor brought a new copy each month, and discussed the contents with the parent, particularly as they related to possibilities for improving the status of Negro individuals.

A detailed interview with the mother, which took place prior to the beginning of the summer school, indicated that most of the mothers in the project had very little idea of what they themselves could do to improve their child's chances for adequate school performance. The mother typically saw the way she could help her child do well in school as being one largely of sending the child to school adequately clothed, clean, and with lunch money. We hope through the work of the home visitor, over the two academic years before the children enter school and during the first grade, to help the parents develop somewhat different attitudes toward the importance of the parent's help and encouragement in school activities. At the same time we hope to develop in the parents actual techniques of working with their youngsters so as to improve their children's competence. How successful these endeavors will be must be judged by how the children actually perform when they enter school.

Pre-Testing for Summer, 1963

As was done prior to the summer session in 1962, all children in the four groups were tested prior to the summer school meetings. Again the Binet and the PPVT (Form A) were administered. In addition a series of tests which approximated those used by Meyers and Dingman in their study of primary abilities in young children was administered. These tests consisted of:

Hand-eye psychomotor

1. bead stringing
2. circle dotting
3. cube stacking

Perceptual speed

1. Identical pictures (Thurstone PMA)
2. Identical figures (Thurstone PMA)
3. Design discrimination (local)

Linguistic

1. PPVT (as listed above)
2. Illinois Test of Psycholinguistic Ability
   a. Visual decoding
   b. Auditory-vocal association
   c. Vocal encoding

Reasoning (non-verbal)

1. Raven Progressive Matrices
2. Figure copying (local)

In the three Murfreesboro groups, the examiners were unaware of the placement of the child in a given group. The results of this pre-testing for the Binet and the PPVT are given in Table III and IV (pp. 16 and 17).

The Summer Session, 1963

During the summer of 1963 both the first and second treatment groups met for four hours each day, five days a week, for a period of ten weeks. The first experimental group (T_1) had the same coordinating teacher it had had the year before. In addition, two of the small group teachers were ones that had also worked in the previous summer. The coordinating teacher for the children of the second experimental group (T_2), in summer school for the first time, had served as our coordinating teacher in a pilot study conducted in the summer of 1959. For each treatment group there were four small-group teachers. Again the composition was approximately equal as to sex of the small group teachers and as to race. This summer two of the students in the school psychology program worked as small group teachers; the other were college sophomores and juniors. They came from the following institutions: Fisk, Tuskegee, Tennessee State University, Peabody, Oberlin, University of Chicago. They were selected on the basis of general ability and our best judgment as to their interest in the project and probable competence in working with young children. All except one of the small group teachers turned in good to excellent performances. One, who worked with five children in T_1, appeared less adequate; it is possible that this circumstance may have served to decrease gain scores in this group.

Major Changes in the Program as Compared to the Summer of 1962

In general th program was similar to that of the previous summer, but involved changes in emphases and in ways of reinforcing the children, as dependent on the experience of the summer before, and the greater level of maturity of both groups. The major differences that appear to the writers are as follows:

1. Initial differences in the two groups. As can be seen by a look at Table II, T_2 was initially somewhat superior to the T_1. In addition it was the general observation of the writers that T_2 contained fewer children with personal and social problems that mitigated against fairly rapid adjustment to the school situation. Part of this, of course, was an additional year of living, but many of the problems that appeared in the T_1 had not disappeared entirely by the second summer. The major difference, of course, in the two groups was that T_1 had had a previous summer school experience, and that the home visitor has been in each of the children's homes approximately 25 times during the fall through spring months.

2. Differences in the availability of materials. As would be expected over a period of a year, it was possible to collect many more materials for use with the children. Books were purchased. A large collection of pictures was assembled, as many as possible being pictures of Negro children and adults. These were used for language development, for sorting by category, and were cut into simple puzzles for the children to assemble. A large number of wooden puzzles ranging from the simplest to relatively complex ones (36 or more pieces) were purchased. A selection of phonograph records and song books, as compiled by a consultant on music for young children, was acquired.

3. Differences in the amount of daily preparation of the teachers. As was mentioned earlier in the report, the writers believed that small group teachers did not do an adequate job of lesson planning during the first summer. For the second summer, an additional hour of planning was built into the schedule, and a workroom with individual desks provided for the entire staff. Planning and preparation of materials was much more extensive than during the previous summer. The coordinating teachers supervised the lesson plans, and helped the small group teachers to fit their plans in with the large group sessions handled by the coordinating teachers and with the particular levels of ability of the children involved.

4. Differences in the use of materials and in teaching methods. As would be expected, with children a year older, more difficult materials could be used. Children could work more complicated puzzles; they could complete more difficult pegboard designs; they could converse more freely on many topics; they could identify and classify far more objects, or pictures of objects; they were able to follow instructions more closely; their painting showed some order and planning rather than mere covering of paper with brush strokes.

5. Differences in instructional emphases in the two groups. Obviously, the second group had to begin further back than the first one. Although the group was initially a somewhat more capable one, they had the need for a period of adjustment to the preschool. Most of them had had little opportunity to handle the kinds of materials--from Irish mails to wooden puzzles--that abounded in the school. They were unused to wor ing a group. On the other hand, because of their greater maturity level,

they were able to move much more rapidly than T_1 had been able to do in the previous summer. For example, by the end of the first three weeks, most of the children knew the primary colors, plus brown, and black; they could count to ten or so. It was the writer's general observation that the coordinating teacher for T_2, and in the turn the small group teachers, concentrated more heavily on language, particularly on the recognition of common objects and activities than was true of T_1. In the first experimental group there appeared to be somewhat more stress during the second summer on perceptual type activities than in T_2, and also more stress on the development of achievement motivation and related variables.

6. Changes in methods of reinforcement. Early in the summer, it was found that the children in T_1 (indeed as we had hoped) were responding less to concrete rewards, of the rather minor types we offered, and were beginning to be more responsive to the more general verbal approval of the adult and to rewards of a more symbolic sort. There also appeared to be some internalization of standards of performance. For example, some of the children in the first group worked very hard to learn not to spill food on themselves at lunch in order to be awarded the privilege of not wearing a bib. They were more interested in little colored stickers on a chart after their name to represent a certain accomplishment, as solving a given wooden puzzle, than they were in M and M's. They showed a considerably improved ability to wait for a delayed reward. As an illustration, the children were promised a coloring book on Tuesday as a reward for certain kinds of activities in which they were to engage. Then Tuesday afternoon came, they were told that if they wished to wait until Friday that they might also have a box of crayons to go with the book. Almost all of the children waited.

The concrete immediate rewards that had proved successful with T_1 in the previous summer were effective with T_2 in the early part of the summer. Also highly effective was physical contact with an adult. These children, however, also showed movement in the direction of responding more to verbal reward and to the more abstract type, in addition to being able to delay gratification for a longer period of time.

7. Greater use of field trips. Although T_1 had gone on several field trips during the first year, this activity was greatly stepped up during the second year for both groups. The children visited, among others, the following places: Army Air Force Base, fire station, filling station, the public library, dairy, bakery, two farms, grocery stores, variety store. These visits, both before and after the actual trip, formed the basis for considerable learning about the methods of transportation, community, the people within it, foodstuffs, furniture, and the like.

8. Use of "take-home" materials. Although a considerable use had been made in the previous summer of the children's own products—paintings, little booklets, and the like—as objects to take home to show

their parents, this activity was increased during the second summer. Always on Friday, and usually once or twice during the week, the children had something to take home to their parents, either an item of their own making or else a reward, either concrete or relatively abstract, as an evidence of some accomplishment.

The Post-Testing, August 1963

The children of all four groups were tested just after the summer school experience for the two experimental groups. All tests administered at the beginning of the summer were readministered with one exception. The cube stacking test had been so easy for the children that there was practically no variance in scores. Instead a more difficult object stacking using round wooden beads was substituted. Form B of the PPVT was used, as it had been done in the summer of 1962.

The results of all the testings of the children upon the Binet and the PPVT are given in Tables III and IV, respectively. These are also graphically represented in Figures A and B.

Table III

Mean Scores on the Stanford Binet

	T_1		T_2		T_3		T_4	
	MA	IQ	MA	IQ	MA	IQ	MA	IQ
May 62	39.3	85.6	42.0	91.2	40.8	87.4	40.3	88.0
Aug. 62	49.0	99.6	45.4	89.6	45.0	91.5	43.9	88.7
May 63	54.0	93.4	54.8	93.2	53.7	90.0	51.2	88.2
Aug. 63	58.2	95.7	59.8	96.3	54.5	83.4	52.3	85.5
Gain (May 62-Aug. 63)	18.9	10.1	17.8	5.1	13.7	-5.0	12.0	-2.5

In interpreting the results it should be remembered that a certain amount of practice effect could be involved, with four administrations of the Binet within a 15 month period. The mean IQ scores for the two control groups, however, give little indication of practice effects. On the PPVT, Form A was administered each May, and Form B each August. Again, the control groups give little indication of a practice effect.

Table IV

Mean Gains on Peabody Picture Vocabulary Test

	T_1		T_2		T_3		T_4	
	Raw Score	MA	Raw Score	MA	Raw Score	MA	Raw Score	MA
May 62	18.6	29.8	19.6	30.3	17.9	28.3	22.3	32.2
Aug. 62	27.8	36.3	24.2	33.5	22.0	31.2	20.0	30.7
May 63	36.2	44.8	32.2	40.2	30.9	38.8	31.1	39.7
Aug. 63	37.5	45.0	41.8	50.6	29.8	38.4	29.9	38.6
Gain (May 62-Aug. 63)	18.9	15.2	22.2	20.3	11.9	10.1	7.6	6.4

Since the statistical analyses of the data became rather voluminous, they will not be presented in detail in this report but will be available at a later date for interested persons. Only the major comparisons will be discussed.

Analyses of variances were run for the four groups on gain scores from May 62 to August 63, and from May 63 to August 63.

On the Binet MA's, the F for the May, 1962 to August, 1963 gains was 9.09 where $F_{3,60}(.95) = 2.76$. Comparisons of the subgroups by t tests indicated that T_1 and T_2 both showed significantly greater gains than either T_3 or T_4. The difference in the T_1 and T_2 groups was not significant. On the May, 1963 to August 1963 comparison, a significant F was found, 3.36. Again, T_1 and T_2 showed significantly greater gains than either T_3 or T_4. It may be seen by Table III, however, that the gains of T_1 and T_2 were less marked than the gain had been for T_1 over the summer of 1962.

Comparisons on the IQ for the Binet were also run. As would be expected the findings were similar, although this time the F for the May, 1963 to August, 1963 fell short of significance at the .05 level. Here $F = 2.54$, where $F_{3,60}(.95) = 2.76$.

On the PPVT, the analysis of gain scores on mental age from May, 1962 to August, 1963 yielded an F of 10.04. By use of t comparisons it was shown that both T_1 and T_2 showed a significantly greater gain

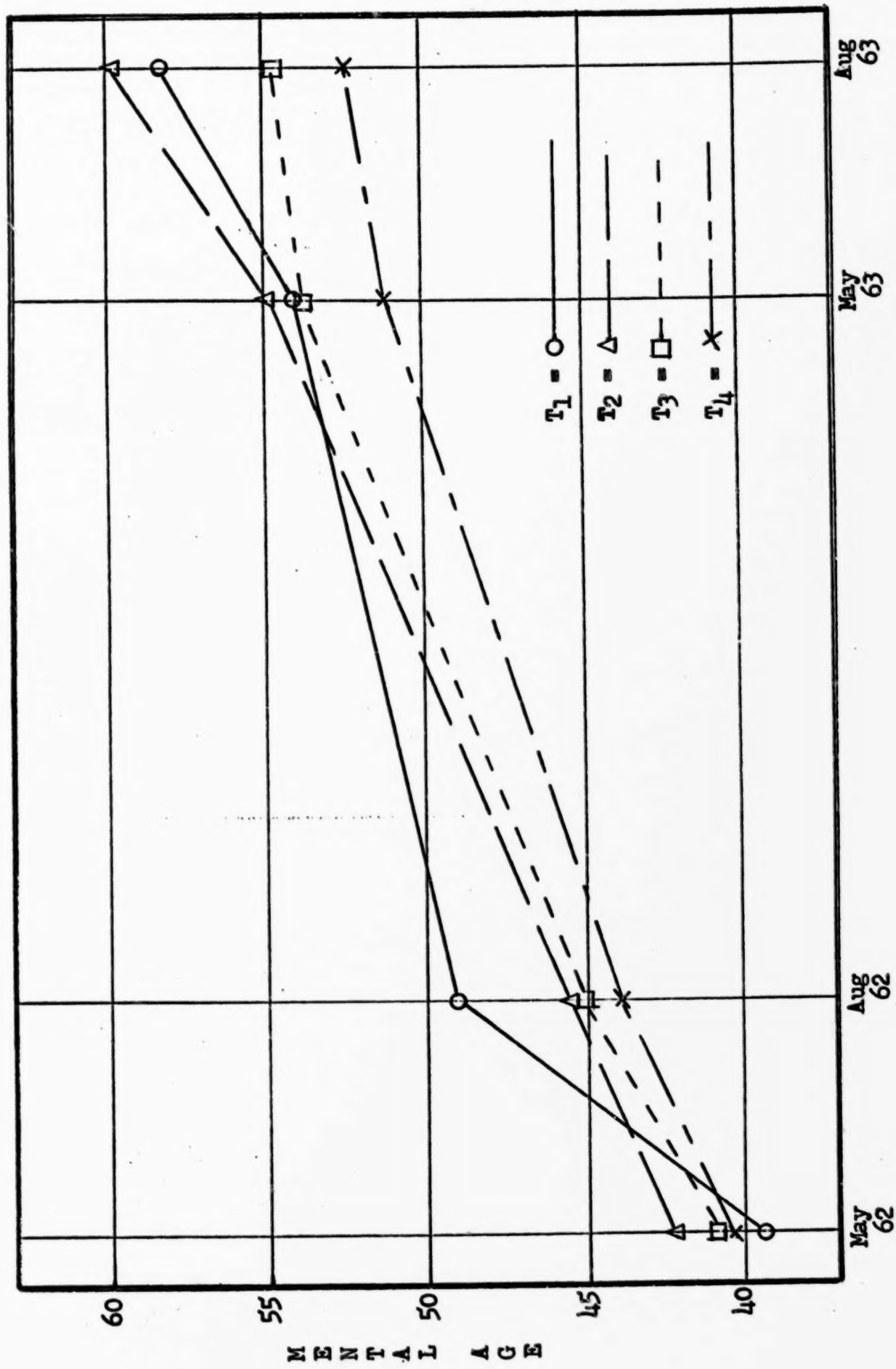

Fig. A. Binet Mean Mental Age Scores for ETP Training and Control Groups.

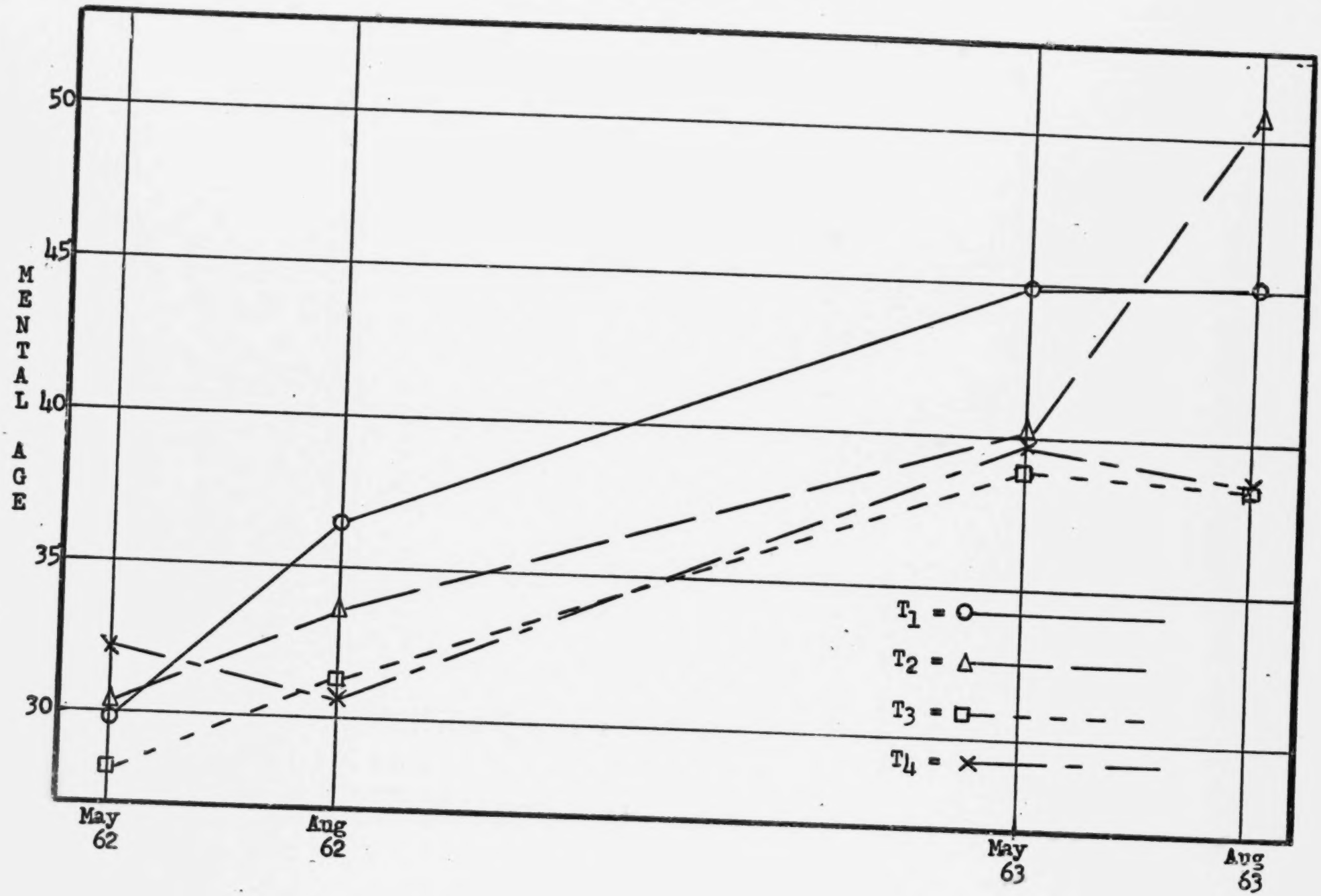

Fig. B. PPVT Mean Mental Age Scores for ETP Training and Control Groups.

than T_3 or T_4. T_1, however, did not show a significantly greater gain than did T_2.

Raw score comparisons were made for the PPVT. Here both T_1 and T_2 were found to be significantly superior to T_4 on the May, 1962 to August, 1963 comparison, although T_1 did not prove to be significantly higher than T_3, nor than T_2.

On the comparisons over the summer of 1963, T_2 showed a significantly greater gain than either of the other three groups.

Analyses of variance were also run for the scores of all four groups on the August, 1963 testing. For the Binet MA's, $F = 5.52$. Comparisons by t tests indicated that T_1 and T_2 were both superior to T_3 and the T_4. T_1, however, was not significantly different from T_2. On the PPVT MA's both T_1 and T_2 were superior to T_3 and to T_4; T_1 was not superior to T_2; in fact, T_2 was superior to T_1, although the difference was not significant at the .05 level.

Comparisons on the several tests that were grouped under the heading of primary abilities tests yielded few significant differences. This is not surprising in terms of the somewhat low reliability of many of these tests, most of which were quite brief and are basically subtests of more extended batteries. Most of the tests, however, with the exception of the psychomotor ones, did show score changes in the direction which would be predicted, but only in the case of two of the subtests of the Illinois Test of Psycholinguistic Ability were comparisons significant at the .05 level. Here on the test of visual decoding, all other groups were superior to T_3. On the test of auditory-vocal association T_1 was superior to T_4, and T_2 to T_3.

The findings here reported indicate that on the Binet and on the PPVT, our two experimental groups both show superiority to the control group. Yet the first treatment group, with two summers of special experiences, and with an intervening nine months of contacts with the home visitor, is not superior to the second treatment group which has had only one summer of training. There are several factors that must be taken into account, however, before such results are accepted as indicating that the smaller amount of experience at a later date is as efficacious as a greater amount begun earlier.

First, our major concern is not with performance on an intelligence or a picture-vocabulary test, but on school performance, broadly viewed. Our crucial comparisons are yet in the future. Although such tests as we have used tend to be predictive of school performance, correlations in general are low enough to indicate that a large part of the variance must be accounted for from other sources. We hope that the attitudes we are trying to engender may contribute an important part to the variance on future school performance.

Another important circumstance centers around some of the problems that arise in testing the children in our four groups. Because our

results on the PPVT for T_1 seemed rather odd over the summer of 1963—essentially a picture of no gain whatsoever—we went back and made an analysis of gain scores on the basis of examiners (of which we had three) to see if there was a significant examiner effect. All of our examiners were well trained persons, basically third year graduate students with considerable background in testing. Yet we found on the PPVT there was a significant examiner effect, one examiner getting considerably lower gain scores than the other two examiners. This effect furthermore seemed to be centered in T_1, as indicated by t comparisons. It has been the experience of the writers, as they have worked closely with the children of the two experimental groups, and with the data derived from testing these youngsters, that the culturally deprived child poses some major problems of adequate testing. Our best guesses are that these problems center in rapport; in the use of appropriate language, including pronunciation; and above all, in allowing sufficient time for the youngsters to respond. With these possible factors operative, we would expect that differences in skill among examiners would lead to greatly increasing the variance on test scores and/or gain scores. The variances particularly on the PPVT tended to be extremely large. As may be seen by inspection of Table IV, large mean gains on the PPVT were shown by the experimental groups; the variances were so large, however, as to mean that many of these differences did not approach statistical significance. Another possible influence upon the PPVT results, which the writers propose to investigate, is the possible cultural bias in Form B of the test. Scores in general appear to run lower on this form, and it may be that an item analysis would reveal certain items as having a definite cultural loading.

As a third point, the second treatment group tended to be superior in initial status on the Binet to the other three groups. This was partly the result of how the random numbers fell in dividing the groups. One child, in addition, was dropped from this group. As he had the lowest IQ in the group, this of course raised the mean for the group, so that at our initial screening, the mean MA for T_2 was approximately 3 months greater than that of T_1.

For all these reasons it is probably premature to draw any conclusions about the relative efficacy of the different periods of training. Such conclusions will be more appropriate at a later date when we have more complete results for the children. At present our safest conclusion is probably that the experiences we are providing for the children are having measurable effects on the two tests which correlate moderately in the school achievement. But again, our crucial comparisons must wait until the youngsters of the two experimental and the two control groups are well into their school programs.

Special Data Collected during the Summer, 1963

The children in the three groups of the Early Training Project that reside in Murfreesboro form a readily available pool of

experimental subjects upon whom we already have a large amount of data. There are many hypotheses concerning children's learning, of the influence of cultural deprivation upon the development of motivational and social patterns, the development of language in deprived groups, and similar topics which it would be meaningful to investigate with the children, and particularly to trace over a period of years.

For these reasons we have begun to collect additional data, both for immediate and for future comparisons.

One study was run this summer involving the repetition choice paradigm, on the assumption made by Crandall that choice of the task upon which the child had failed rather than the one upon which he had succeeded was indicative of achievement motivation. Our children at present are following the usual choice of middle class five year olds, the successful task. We do, however, have a baseline from which we can make judgments on future results. In addition we have been able to devise techniques that avoid some of the effects of order and position, problems which have concerned some previous experimenters.

Tape recordings of the children's speech in a standard situation were collected, to make possible detailed analyses of the verbal productivity of children somewhat along the lines used by McCarthy.

A situation for studying novelty seeking behavior, involving an open field situation with objects hidden under plastic covers, was devised. Several measures collected upon each child in the setting. The analysis of the data collected has not been completed, but it seems likely that so far, little of significance is emerging. There appear to be too many variables confounded in the technique at present for any clear cut results to emerge. We have hopes, however, for greater success with the technique upon some refinement of the method.

Just prior to the summer school an independent interview with each of the mothers in the four treatment groups was conducted by a trained social worker, herself a Negro woman with good skills in relating to the mothers in our project. These have not been analyzed at this writing. We hope, however, that they will give us some picture of the effect of the total project and particularly of work of the home visitor upon the parent's attitudes toward their children and the possibility of their success in school.

Detailed ratings of the children on ten scales relating to motivation and to adjustment were made by the coordinating teachers in cooperation with the small group teachers for each of the two experimental groups. These were largely baseline data to use for future predictions.

Projected Activities for Fall, 1963 to Spring, 1964

Our present plan is to follow the general pattern of activities carried on with T_1 during the past fall to spring months. We have employed

a second home visitor, with a background similar to our first one. She is working with the T_2 children and their parents, while our first home visitor again is working with T_1. Each group of children is coming in once a month, on a Saturday, for a three hour meeting with its general purpose the maintenance of the attitudes, skills, and abilities acquired during the previous summer.

This year we are giving the parents a copy of Ebony only on alternate months. On the other month, the parent will receive a copy of Humpty-Dumpty Magazine. As with the copy of Ebony, this will be brought to the child's house by the home visitor, who will discuss with the parent the material that seems particularly applicable to the purposes of the project. The material in Ebony seems sufficiently repetitive that alternate months may be sufficient, and the child's magazine may form a possible focus of interest for the child and parent to serve as one additional push toward the goals of the project. The other materials the home visitor will bring will tend to be similar to those brought during the past year, with a stepping up in terms of the more advanced level of the child. We hope to make particular efforts once more to stress the use of materials and events that occur naturally, or usually, within the child's everyday environment, such as the change of the seasons and its effect upon vegetation, the various trades and businesses carried on within the community. We also hope to extend our use of books for the children during the year, with larger supply of books to circulate among the children, with even more emphasis upon having someone read to the child on a regular basis. At the suggestion of our home visitor a goodly number of our parents are making use of the public library to check out books for their children, and we hope to make this a more frequent practice.

Our plans for the fall to spring months also include a certain amount of data gathering on variables which may be related to the future performance of our children in school, and upon other aspects of their development, such as patterns of social interaction, as compared to the control groups and also to middle class children. In addition, there still remains a fair amount of criterion development. For example, we have done considerable work on a test of achievement motivation which we believe, on the basis of our present data, should be appropriate to these children's level of ability by the coming summer. We also need to develop more adequate means of assessing other attitudes relating to achievement such as persistence and delay of gratification. Our children are approaching an age now, in another year, when we can hope to measure such attitudes with more probable success than heretofore.

Another of our concerns for the coming year relates to the third treatment group, the control group in Murfreesboro. Last summer we brought these children in several times for data-gathering purposes. The reactions of two or three of the parents were somewhat resistant, and this has made us realize that we may need to plan more benefits for this group to insure the continuing cooperation of the parents. In our fourth treatment group, in another town, we pay the parents

$2.50 for bringing a child in for the double testing session and this has proved adequate motivation. We have not done this in Murfreesboro since it seemed financially prohibitive and there was little problem of cooperation with T_1 and T_2. We have brought T_3 children in for holiday parties, and have taken them small Christmas and Easter presents. A procedure we are considering using during the summer of 1964 is the organizing of a play group for the children to meet three times weekly.

Projected Activities for Summer 1964 and Beyond

The summer of 1964 will mark the last time that we shall work with the children of T_1 and T_2 in assembled groups. As may be seen in Table I on page 2, we plan to continue the contacts of the home visitor during the children's first year in school and to proceed that year and the next with follow-up tests. It is only during these years that we will begin to have an answer to our crucial question of the effect of the experiences we have been providing for these youngsters upon their school performance. We, of course, plan to follow the children beyond these first two years wherever feasible. September 1, 1966, however, marks the end of our current study sponsored by NIMH.

Our special concerns as we look forward center around three areas:

1. The summer school for 1964. Although we have been pleased in general with the summer school plans and procedures, as ever, they need sharpening, more adaptation to particular children, and probably more stress upon the child's direct interactions with his environment.

2. Data gathering and analysis. Aside from direct purposes of the study terms of attitudes toward achievement and aptitudes toward achievement, there are many tangential areas on which it will be possible for us to obtain data of value in looking broadly at the culturally deprived child. For example, we have been concerned with the influence of the family structure upon the intellectual and social development of the children in our project. Many of them come from families that are typically matriarchal in organization, and where several women share in child care. The influence of such patterns seems worthy of investigation. As another illustration, there is reason to believe that the culturally deprived boy is apt to have particular problems of parental identification and of the development of an appropriate sex role. We may be able to gather some baseline data here of use in future studies.

3. Plans for the children's school years. It is not part of our general program of study to keep our children in their respective groups once they enter school. They will be placed in regular classrooms. The schools of Murfreesboro have a primary unit system, whereby the children are not placed in formal grades during their first three, or possibly four years of schooling. They are placed in ability groupings on the basis of comprehensive tests given just prior to school entrance. We are concerned with whether some of the experiences which we have

given the children might prove actually handicapping to them in certain ways. It is possible that they will have to learn to be more passive in the school environment; that they must learn to work upon materials and situations that are less meaningful than those of the pre-school summers; that they must get along with far less in the way of school type materials; they must adjust to much larger pupil-to-teacher ratios. For these reasons we are raising the question of whether we should think in terms of trying to get some special consultation help for the teachers in the school which these children most probably will attend. It would be possible to provide such consultation help for all teachers in the primary unit of the school. In this way we would not be interfering in any major way with the experimental design of our study, but we might make it possible to provide both a more appropriate transition for the children of the project and at the same time to improve opportunities for all culturally deprived children in the primary unit.